

Amendments to the Specification

In the Abstract, please amend the following.

A method and a device for on-chip magnetic resonance spectroscopy (FMR, SPR, EPR, ESR, NMR) is proposed. On-chip magnetic resonance spectroscopy may be applied to non-magnetic as well as magnetic materials which may be solids, liquids, or gases, and to solids, liquids and gases. The method of the present invention is suitable for miniaturised miniaturized materials analysis such as for example microfluidics such as, for example, micro-fluidics. The strength of In an example embodiment, the method lies in the relies on the combination of highly efficient spin excitation near on-chip current wires with very sensitive on-chip magnetic sensors. The method and device also allows one to separately detect different types of magnetic particles or molecules.

Fig. 3

In the Specification, page 4, lines 29-33 through page 5, lines 1-4, please amend as shown.

~~The present invention provides a device for on-chip resonance measurements for use with a first orienting magnetic field. The device comprises a chip. The chip comprises:~~

- ~~on chip means for creating a second electromagnetic field to excite precession of oriented spin magnetic moments in a sample to be analysed, and~~
- ~~at least one magnetic sensor for on-chip detection of a magnetic precession of the spin magnetic moments about the first orienting magnetic field in the sample to be analysed.~~

~~In an example embodiment, the present invention provides a device for on-chip resonance measurements for use with a first orienting magnetic field. The device comprises a chip. The chip comprises an on chip means for creating a second electromagnetic field to excite precession of oriented spin magnetic moments in a sample~~

to to be analyzed. There is at least one magnetic sensor for on-chip detection of a magnetic precession of the spin magnetic moments about the first orienting magnetic field in the sample to be analysed.

In the Specification, page 6, lines 7-15, please amend as shown.

~~The present invention furthermore provides a method for performing on-chip magnetic resonance measurements. The method comprises:~~

- ~~orienting spin magnetic moments inside a sample in a first orienting field,~~
- ~~exciting precession of the spin magnetic moments inside the sample to be analysed, and~~
- ~~on-chip detecting of spin magnetic moments precession by means of a magnetic sensor.~~
- ~~The magnetic resonance measurements may for example be magnetic resonance spectroscopy such as NMR, EPR, ESR, FMR, SPR.~~

In another example embodiment, the present invention furthermore provides a method for performing on-chip magnetic resonance measurements. The method comprise orienting spin magnetic moments inside a sample in a first orienting field. Inside the sample to be analyzed, the precession of the spin magnetic moments are excited. With a magnetic sensor, the spin magnetic moments precession is detected on-chip.

The magnetic resonance measurements may, for example, be magnetic resonance spectroscopy such as NMR, EPR, ESR, FMR, and SPR.